

*Bush (L. P.)*

**SOME**

**VITAL STATISTICS**

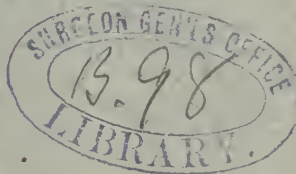
**OF THE**

**CITY OF WILMINGTON,**

BY

**L. P. BUSH, M. D.**

READ BEFORE THE DELAWARE STATE MEDICAL SOCIETY, JUNE 1877.



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The object of this paper is to present to the Society some vital statistics of the City of Wilmington, as drawn from the Registry of Deaths in that city. Unable to get time to analyze the whole Registration. I have taken several of the principal causes of mortality there, as follows:—Typhoid Fever, Pneumonia, Diphtheria, Cholera Infantum, Marasmus and Inanition. Of these I have taken the record for the past five years, 1872 to 1877.

It is not necessary for me to describe the topography of the City of Wilmington—but I may state that west of Walnut street the city is well drained, being high and rolling; but east of that street it is nearly flat. That eastern section contains about one third of the population of the city. The whole city is supplied with Brandywine water, except Brownville, which has been recently brought within the city limits. What was called McDowellville, has been supplied with the Brandywine water within four years—but a considerable portion of it ( $\frac{1}{4}$ ) still use water from wells.

The population of Wilmington, according to the U. S. census for 1870, was 30,841, of which 27,630 were whites, and 3,211 colored.

Estimating the increase since 1870, by the number of houses erected, and at the rate of eleven persons to two houses, we have 38,000 persons at the beginning of the present year; and an average of the last five years would be 34,000.

Of this population there was the following number of deaths—  
January to January:

	1872.	1873.	1874.	1875.	1876.
Whites.	604	543	570	721	529
Colored,	145	126	123	135	132
Total,	749	669	693	856	661

An annual average of 725.

This number includes the deaths in the Almshouse—a large proportion of whose inmates come from Wilmington. The proportion of deaths to population in those years 1 in 47 inhabitants; or 2.10 per cent. of the whole population.

The deaths resulting from Typhoid Fever were as follows:

From March, 1872, to February, 1873, inclusive, 32 deaths.

From “ 1873, to “ 1874, “ 26 “

From “ 1874, to “ 1875, “ 15 “

From “ 1875, to “ 1876, “ 18 “

From “ 1876, to “ 1877, “ 17 “

In all, 108 deaths. Of these deaths

From 1872 to 1873, 28 were white, 4 colored,

From 1873 to 1874, 22 “ white, 4 colored,

From 1874 to 1875, 11 “ white, 4 colored,

From 1875 to 1876, 15 “ white, 3 colored,

From 1876 to 1877, 14 “ white, 3 colored.

Of these cases there were definitely reported as follows; classed by wards:

1	2	3	4	5	6	7	8	9	Wards.
27	4	10	5	12	4	11	8	6	87 Deaths.

\* Of the deaths not included in this estimate by wards, 3 occurred in S. E. Wilmington and 4 in Brownsville, and the remainder were not definitely reported. Indeed there is reason to believe that the mortu-

\*NOTE. Discrepancies in figures occur from failure to report color.

ary record of the city is not as full as it should be ; a defect which will be remedied in future by the ordinance recently passed by the City Council, regarding this point.

It would be impracticable without more correct statistics of the population of the several wards than I possess, to make a satisfactory analysis of the relative proportion of deaths in the respective wards ; and even with that information, it would be difficult to account for the disproportion which here appears ; especially between the First and Second Wards.

It may be noted that the population of the First Ward is about twice as great as that of the Second ; but the First Ward has the advantage of the Second in that many of the houses are new and the situation generally more elevated and dry, with better cellar drainage, and less compactness of dwellings in the new portion, and a soil composed mainly of gravel.

It will be perceived from the above statement that the annual mortality of the white population from Typhoid Fever in Wilmington, estimating the average number of that class at 30,000, was during those five years, 1 in 1666.66, and of the colored people 1 in 1111.

The proportion of the colored and white population is as 1 to 7.5 ; and the proportion of deaths, 1 colored to 4.5 white ; showing a larger mortality among the former ; a difference which ordinary hygienic conditions would serve to explain.

Of the total mortality from this fever an average of those five years gives 1 death to 1569 persons. For the year 1875, the proportion is 1 to 1888 ; and that of Philadelphia for the same year, 1 in 1905. In the epidemic of Typhoid Fever which prevailed in Wilmington from October, 1847 to 1851, inclusive, the whole mortality was 89 ; and as the population at that time was about 12,000, the deaths were as 1 in 540 inhabitants.

I may here state the annual number of deaths from this disease in the city proper, for the seven years, preceeding 1872, were as follows :

1865.	1866.	1867.	1868.	1869.	1870.	1871.
<hr/> 15.	<hr/> 12.	<hr/> 14.	<hr/> 17.	<hr/> 13.	<hr/> 11.	<hr/> 16.

It will appear from this statement that notwithstanding the great increase of our population since 1865, with the exception of the years 1872 and '73, the number of deaths from this disease had scarcely

increased. Whatever may be the causes of this fever, it thus appears that during the long period from 1865 to 1877, they have been less and less operative among our people; or at least, less fatal.

It would seem from the above statistics, that the cause of this fever is not inherent in any section of the city, but spreads throughout; and hence the cause or causes must be general.

In the year 1838, some cases of Typhoid Fever occurred near the Brandywine Springs, four miles west of Wilmington: from which point the disease spread north and west several miles, through a high, well drained and cultivated country, supplied by springs and wells; chiefly the latter. It *seemed in part* to have been extended by contagion, but not exclusively. Nor has a sufficient explanation of that epidemic yet been offered. If we refer it to the impurity or contamination of the drinking water by the drainage from cess-pools, it may be replied that the rain-fall from 1835 to 1840 was 49 inches, annual average, nearly 8 inches more annually than for the next five years, and  $4\frac{1}{2}$  inches more than from 1845 to 1850; so that it is evident that the concentration of the drainage impurities in the water must have been less in the years of the prevalence of the disease than for ten years following, when it had in a great measure subsided. No such visitation has been experienced in that section, since that time.

And here, I would urge upon the members of the Society, the importance of reporting to the Society's committee for the coming year, the number of cases of this disease which comes under their observation, and also the months of their occurrence, ages, occupation, color, sex, cause as far as ascertained, together with the other facts requested by the committee. This would be one step towards utilizing our experience for public benefit, and towards resolving the yet unsolved problem of the chief cause or causes of this disease. Physicians in the country, and in towns, unsupplied by public reservoirs, could add greatly to the knowledge of the causes, and mode of prevention of this disease, so much and so justly dreaded.

If it be true, that one chief cause of this, and other Zymotic diseases is to be found in the impurities of the water we drink, how important is it that we should know it, in order to control the cause. We have, until recently, sought for its origin chiefly, if not exclusively in the impurities of the atmosphere, within and without doors; in personal uncleanness; over-work, whether of body or mind, and other

like agencies. And these causes cannot be ignored ; for it must be apparent that as the winter months advance, and the houses of the people are more and more closed, and ventilation becomes less and less a fact ; when the chambers of the sleeping population are shut in to keep out the cold, and with the same effectiveness keeps out the air : when multitudes go unwashed during the whole winter, sending off from their bodies heavy and pernicious exhalations, we must be satisfied that these factors are not without their importance in the production of these diseases. It had doubtless been long an insolvable riddle, to many other physicians besides myself, that the prevalence of Typhoid Fever did not at all correspond with the existence of the above mentioned conditions, so long considered as the main remote causes of it. I well remember, that on one of the last visits of the late Dr. Samuel Jackson, of the University of Pennsylvania, to this city, a man who had all his life been studying this disease, and who was among the very first to recognize its existence in Philadelphia, he remarked, that he was often utterly at a loss to specify a satisfactory cause or causes of this disease.

In view of these considerations, we may feel ourselves prepared to consider the present theory, which yearly gains strength, that one great cause of Typhoid Fever may be found as much in what enters our stomach as our lungs.

Since the attention of physicians has been called to this subject, numerous facts have been brought forward which show the great power for evil that is exercised by the water we drink. And here we find something to help us understand the existence of this fever in high and well drained districts, inhabited by thrifty and wealthy farmers, whose fields and barns show every evidence of high agricultural cultivation. The drinking water of those farms is usually drawn from wells sunk long before the subject of hygiene occupied the thoughts even of physicians, except in a very general way. From the inconvenience which arises from privies when placed too remotely from the house, they often occupy a situation very near the pumps, and hence render the water liable to be impregnated with the drainage from the cess-pool. The distance to which this percolation extends, varies greatly, being dependant upon the nature of the soil, and the relative depth and situation of wells. From 100 to 200 feet, under favorable circumstances, has the drainage from a privy been ascertained to extend, by showing itself in



the drinking well. Besides the unpleasant impression produced by such facts, the danger to health and life is far more serious than is usually supposed or believed. It is especially so after long droughts, when the water in the wells becomes low, that the consequences of these impurities show themselves. At other times, when the flow of water, and consequent dilution are great, but little inconvenience may be experienced, for long periods, or not at all. But there is a point of saturation by this septic matter, which is sometimes reached at length, and then the anti-hygienic results develop themselves unexpectedly, and unaccountably, if not carefully investigated.

Enough perhaps has been said to stimulate attention to this subject, in the hope that we may be led to examine further into the evidences of this agent as one cause of Typhoid fever and other zymotic diseases. The only instrumentality by which this, and kindred subjects can be established if true, or discredited if false, is that of Physicians. It is and always has been our province to do a great deal for the community for which we receive neither thanks or reward, except we have it in the consciousness of doing good. Under the influence of ignorance upon these subjects of health and hygiene, and of prejudice against them, as at variance with the teachings of their limited and defective observation and experience, we need not expect much assistance from the people generally, but rather opposition; until after repeated and long continued efforts, and the demonstration of facts, to the meaning of which their eyes have been opened, they are brought to appreciate that there may be value, and can at least be no harm in encouraging the dissemination of these truths. At the last meeting of our Legislature the Committee appointed by the American Medical Association, in conjunction with a like Committee from this Society, prepared a bill for the Registration of Births, Marriages and Deaths, and also one for the establishment of a State Board of Health; but as an illustration of what has just been said, that body could not see the necessity for their enactment, and they were indefinitely postponed. It is to be hoped that when our State Representatives convene again they may take a more favorable view of the matter and that these bills may become a law. But in order to do this we must show our appreciation of the value of these subjects by our endeavors to impress them upon the minds of our Representatives and the people, whenever opportunity offers, and it must be made to appear to them that in this



matter it is not Physicians that are to be benefitted, but the people, whose interests they, the Legislature, are elected to maintain; and that not in subjects political and material only, but also in those which pertain to their comfort and their very existence. It is very true that the faithful execution of such laws as these involve no inconsiderable amount of time and inconvenience to Physicians—but as before said, this is a duty incumbent upon us, and inherent in our profession, and which we are bound to be ready to perform. Thus acting, we show ourselves to be worthy successors of that noble army of philanthropists, who have, from the days of Hippocrates spent time, ease, and life in the cause of humanity, by labouring to evolve light from darkness, truth from error, and to diminish the amount of suffering entailed upon man by reason of transgression of the laws of his physical and moral nature, which are the laws of God.

The next disease the statistics of which will be presented is *Diphtheria*. This is a disease whose presence in Wilmington is bounded by the year 1860, when the first case was reported to the Register of Deaths. From the year 1847, when the Registry was commenced, to the year 1860, but nine deaths were reported from throat disease, none of them under the name of Diphtheria. From 1860 to 1865, inclusive, there occurred 71 deaths from this disease, and for the succeeding six years the deaths were 46.

1860.	1861.	1862.	1863.	1864.	1865.
18.	0	20.	4.	9.	20.
1866.	1867.	1868.	1869.	1870.	1871.
7.	8.	10.	7.	8.	6.

During the five years from march, 1872, to March, 1877, the number of deaths from this disease as reported, was 61, of which 52 were whites and 9 colored persons, tabulated as follows, by Wards:

1	2	3	4	5	6	7	8	9	Wards.
11	5	9	3	11	3	1	16	1	Deaths.

The increase of this Zymotic disease since the year 1860, before which time it was almost unknown, shows that the causes producing it must be more active than previously. What are those causes? There is an increase of population, two and a half times, and a consequent

increase of compactedness ; in 1860 the population being 21,508 ; now 38,000 ; but on the contrary, with the increase of population came an increase of warm and dry dwellings, small and close together it is true, but attended with an improvement in the means and mode of living.

There has been also an increase of manufactures along the Brandywine by several hundred per cent. and a consequent increase of refuse materials thrown into the water since 1860. But by the analysis of Messrs. Booth and Garrett, and of Prof. Aikin, in 1863. and that of Prof. Wolf, of Delaware College, this year, the quantity of organic and saline matter seem to be about the same in character and quantity then as now. There has been also a great improvement in the hygienic condition of the city by street paving, and by the filling up of ponds and sloughs in certain sections.

If there is a change in any respect unfavorable to the health of the city it would seem to be in the water we drink. Whatever stress may be laid upon the impurities from the factories, it is quadrupled by those which are swept into the Brandywine by every heavy rainfall from the hillsides and valleys, consisting of earthy and excrementitious substances.

One important fact may be observed. During the years 1847 to 1851, when the typhoid fever prevailed as above remarked, to an alarming extent among us, almost no deaths from throat disease are recorded, showing that the causes of these diseases are not identical. This conclusion also seems justifiable from the additional fact that the mortuary record of the two diseases here, after the establishment of the Diphtheria among us, bear no especial relation to each other.

The proportion of colored and white cases is 9 of the former to 52 of the latter, which is nearly 1 to 6. This is a disease which chiefly affects children under 10 years of age, and is most prevalent in the cold months. In 1873 no death occurred from June to October ; in 1875 and 1876 none from March to September, inclusive.

Of all the Acute Diseases, Cholera Infantum stands at the head of the list of mortality. Originating in the high thermometrical range of June, July and August, it hurries through its devastating course, and leaves behind it a multitude of slain innocents. No sex or station of life is exempt from its power : but its chief spoils are among the children of poverty and ignorance. In the same five years, during the

months of June, July, August and September, were 168 deaths, an annual average of 33 3-5, of which 143 were whites and 25 colored. Of these, 102 died in July—a fearful mortality when we consider that these subjects come chiefly from that portion of the population under three years of age.

The proportion in these cases of colored to white, is 1 to 5.7—showing a greater mortality in the former than in the latter; when compared with Typhoid Fever and Diphtheria.

The relative mortality by wards is as follows.

1	2	3	4	5	6	7	8	9	Wards.
39	7	20	15	21	13	9	20	4	Deaths.

Besides these, were a number of cases residence not reported.

From the year 1860 to 1872, inclusive, the deaths were as follows from Cholera Infantum:

1860.	1861.	1862.	1863.	1864.	1865.	1866.
22.	15.	12.	14.	21.	19.	22.
1867.	1868.	1869.	1870.	1871.	1872.	
15.	32.	26.	23.	28.	43.	

Of CROUP, the following is the simple record of deaths:

Months	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	
1871.	0	1	1	1	0	0	0	1	0	0	0	0	4
1872.	0	3	3	0	0	0	0	2	3	3	1	2	17
1873.	1	0	0	2	0	2	0	1	2	0	4	1	13
1874.	1	2	0	1	3	0	0	1	0	6	2	2	18
1875.	3	3	1	0	2	1	1	2	0	1	0	1	15
1876.	1	3	3	0	0	0	0	1	0	2	2	0	12

Of *Marasmus and Inanition* the same five years give a result of 153 deaths—or 30 3-5 annually, of which 122 were whites, and 31 colored. Showing a greater proportion of blacks (viz: 1 in 4.) than in Cholera Infantum.

Of *Pneumonia* we find a mortality of 91 in those 5 years—60 whites and 31 colored. In the N. E. section, 23; N. W., 9; S. E., 14; S. W., 19. These figures show where the danger to the sons of Africa come from—not so much from his stomach and bowels as from

his lungs, the proportion of deaths from this disease of white to colored being scarcely 2 to 1.

This is an appropriate remark, for while, as a class, the colored people are worse housed and fed, and less cleanly than white day laborers generally are, yet these causes should operate equally upon them in the production of Cholera Morbus, as in Phthisis and Pneumonia. But as such is not the case, we say that these facts go to prove that that class are peculiarly subject, in a fatal degree, to diseases of the respiratory organs.

The only remaining disease to be mentioned is *Phthisis*. The whole mortality from this disease in the same years was 418—of which 325 were white, and 93 colored; the proportion being  $3\frac{1}{2}$  of the former to 1 of the latter; and the ratio of deaths to population 1 in 81 persons. In the successive years, commencing with 1872, the deaths from this cause, were 75, 87, 70, 96, and 90; a mean annual mortality of 83.60; which is at the rate of 10.75 per cent. of the whole mortality. In this, and in all other reports of special diseases here made, the deaths in the Almshouse are not included. The deaths per cent. from Phthisis to the whole mortality of the following places, is as follows :

Paris, . . .	13.4 per cent.	Rome, . . . . .	9 per cent.
Belgium, . .	16 “ “	Naples, . . . . .	8 “ “
England, . .	12 “ “	New York, 1866-'70,	13.7 “ “
Frankford, .	25 “ “	Brooklyn, 1868, .	14.84 “ “
Vienna, . . .	20 “ “	San Francisco, 1877,	13.50 “ “
Berlin, . . .	17.5 “ “	Philadelphia, “	13.16 “ “
Geneva. . . .	9.7 “ “	Wilmington, '72-'77,	10.75 “ “
Turin, . . . .	9 “ “	Boston, . . . . .	14.17 “ “
Venice, . . .	9 “ “		

These are but a few of the results which might be obtained from a thorough analysis of the mortuary record of our city. As the first attempt however, to condense them it will form a foundation for some more patient worker in these statistics; while we await the time when the municipal authorities will have learned the importance to the community and to the city, of a complete annual report of its vital statistics, and will provide a competent person to prepare such report.

The mortality of the city from 1850 to 1876 was as follows,

	<i>Whole No.</i>	<i>W.</i>	<i>Col.</i>		<i>Whole No.</i>	<i>W.</i>	<i>Col.</i>
1850.	296	224	72	1864.	478	413	65
1851.	351	289	62	1865.	469	402	67
1852.	355	265	90	1866.	439	346	93
1853.	358	273	85	1867.	456	383	73
1854.	420	318	102	1868.	538	470	68
1855.	422	339	83	1869.	494	424	70
1856.	461	371	90	1870.	524	456	68
1857.	510	425	85	1871.	534	434	100
1858.	423	320	103	1872.	761	616	145
1859.	453	362	91	1873.	663	543	120
1860.	434	338	96	1874.	693	570	123
1861.	421	343	78	1875.	756	721	135
1862.	472	396	76	1876.	661	529	132
1863.	489	412	77				

Previously to 1865 the number of interments from abroad were included in the death rate by an oversight of the several Registrars. The number varied from none to 12 burials per month.

From the Vital Report of the City of Richmond, for 1876, it appears that the population was, of white people 42,830, of colored people 32,170.

Of the white population there was one birth to 40.36.

“ “ colored “ “ “ one “ “ 36.72.

Of the white “ “ “ one death “ 57.57.

“ “ colored “ “ “ one “ “ 35.54.

That the whites gained by births over deaths, . . . . . 317

That the colored lost by deaths over births, . . . . . 29

The colored people form so large an item in the population of both Richmond and Wilmington, (though far greater in the former than the latter) that a fact such as that just mentioned is interesting and important; but from the want of a record of births in Wilmington, it is impossible to make any approximation to a true estimate of the gains or losses.

Hence we see the importance of a record of births; and not of births only, but also of marriages. It is impossible without all of these to ascertain the inherent vitality and prosperity of any community. We know that our population is increasing; and that knowledge was perhaps sufficient a hundred years ago; but it is a fact unworthy of an intelligent community that it is satisfied with the gross knowledge of

an increase, without knowing how, or whence it comes; and whether the lives of its citizens could not be prolonged, and thus the strength and prosperity of the people be greatly increased. Independent of the personal affliction which death induces, it is often an irreparable loss to the community, when a person fitted by education and experience for usefulness, is hurried out of the world by preventable causes, which, however unseen they may be, are none the less potent for evil. Large sums of money are expended annually by the public to fit our children for citizenship; is it wise to overlook the careful investigation of causes which will shorten their lives, and deprive the public of their services?

These remarks are appropriate not to Wilmington merely,—for that city has a Board of Health, long established, but not without material defects, and the Vital Reports are insufficient as just stated,—but the whole State has need of a waking up to the importance of an intelligent supervision of the interests pertaining to the health of her citizens. Important as the political concerns of a State may be, and are, they are not the only public interest to which the people should devote their attention.

Assuming that a record of births should be kept, and that it will be kept, and the sooner the better, the following is suggested as the most feasible plan. The points to be ascertained are as follows: Date of birth, sex, color, alive or still-born, name, name and nation of father, ditto of mother.

The proper person to obtain these facts is the Assessor, to whose labors it would add but little, and who could readily get all these data even to the name, which the Physician could seldom obtain at the time of birth. Besides, many children are born when no Physician is present, nor even a midwife, and consequently no report would be made, whereas all these could be gathered up by the Assessor.

A dime or less for each case would compensate the officer for his trouble; would add very little to the expenses of the city or county, and would greatly enhance the knowledge as well as the credit of the community.







